

NC 17391  
B&W 5288.00014

Context Request message,

the SGSN sending an Activate PDP Context Accept message to the mobile station in response to the Create PDP Context Response message, the Activate PDP Context Accept message containing information assigning one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Activate PDP Context Request message.

2. The GPRS-based communications network according to claim 1, wherein the mobile station receives the Activate PDP Context Accept message containing the information relating to an assignment of one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Activate PDP Context Request message.

3. The GPRS-based communications network according to claim 1, wherein the information contained in the APN field of the Activate PDP Context Request message explicitly indicates one of a private network address and a public network address.

4. The GPRS-based communications network according to claim 1, wherein the information contained in the APN field of the Activation PDP Context Request message implicitly indicates one of a private network address and a public network address.

5. The GPRS-based communications network according to claim 1, wherein the private network address and the public network address are each one of an IPv4 network address and an IPv6 network address.

6. The GPRS-based communications network according to claim 1, wherein the GPRS-based communications network is a GPRS communications network.

7. The GPRS-based communications network according to claim 1, wherein the GPRS-based communications network is a Universal Mobile Telecommunications System.

8. A method for assigning a network address in a General Packet Radio System (GPRS) -based communications network, the method comprising:

receiving an Activate Packet Data Protocol (PDP) Context Request message at a Serving GPRS Support Node (SGSN) of the GPRS-based communications network from a mobile station of the GPRS-based communications network, the Activate PDP Context Request message having an APN field containing information relating to a request for one of a private network address and a public network address; and

sending an Activate PDP Context Accept message to the mobile station containing information assigning one of a private network address and a public network

NC 17391  
B&W 5288.00014

address to the mobile station based on the information contained in the APN field of the Activate PDP Context Request message.

9. The method according to claim 8, further comprising steps of:

sending a Create PDP Context Request message from the SGSN to a Gateway GPRS Support Node (GGSN) of the GPRS-based communications network, the Create PDP Context Request message having an APN field containing information relating to a request for one of a private network address and a public network address; and

receiving a Create PDP Context Response message from the GGSN containing information assigning one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Activate PDP Context Request message.

10. The method according to claim 9, further comprising steps of:

receiving the Create PDP Context Request message from the SGSN at the GGSN;

assigning one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Create PDP Context Request message and

sending the Create PDP Context Response message from the GGSN to the SGSN containing the information assigning one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Create PDP Context Request message.

11. The method according to claim 8, further comprising steps of:

sending a Create PDP Context Request message from the SGSN to a Border Gateway (BG) of the GPRS-based communications network, the Create PDP Context Request message having an APN field containing information relating to a request for one of a private network address and a public network address; and

receiving a Create PDP Context Response message at the SGSN from the BG containing information assigning one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Activate PDP Context Request message.

12. The method according to claim 11, further comprising steps of:

receiving the Create PDP Context Request message at the BG;

assigning one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Create PDP Context Request message; and

NC 17391  
B&W 5288.00014

sending the Create PDP Context Response message to the SGSN containing the information assigning one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Create PDP Context Request message.

13. The method according to claim 12, further comprising steps of:

sending the Create PDP Context Request message from the SGSN to a Gateway GPRS Support Node (GGSN) of the GPRS-based communications network;

sending the Create PDP Context Request message from the GGSN to the BG;

receiving the Create PDP Context Response message at the GGSN from the BG; and

receiving the Create PDP Context Response message at the SGSN from the GGSN.

14. The method according to claim 8, further comprising a step receiving at the mobile station the Activate PDP Context Accept message containing the information relating to an assignment of one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Activate PDP Context Request message.

NC 17391  
B&W 5288.00014

15. The method according to claim 8, wherein the information contained in the APN field of the Activate PDP Context Request message explicitly indicates one of a private network address and a public network address.

16. The method according to claim 8, wherein the information contained in the APN field of the Activate PDP Context Request message implicitly indicates one of a private network address and a public network address.

17. The method according to claim 8, wherein the private network address and the public network address are each one of an IPv4 network address and an IPv6 network address.

18. The method according to claim 8, wherein the GPRS-based communications network is a GPRS communications network.

19. The method according to claim 8, wherein the GPRS-based communications network is a Universal Mobile Telecommunications System.

20. A General Packet Radio System (GPRS) -based communications network comprising:

NC 17391  
B&W 5288.00014

a Serving GPRS Support Node (SGSN) receiving an Activate Packet Data Protocol (PDP) Context Request message from a mobile station of the GPRS-based communications network, the Activate PDP Context Request message having an APN field containing information relating to a request for one of a private network address and a public network address; and

a Border Gateway (BG) of the GPRS-based communications network,

the SGSN sending a Create PDP Context Request message from the SGSN to the BG in response to the Activate PDP Protocol Context Request, the Create PDP Context Request message having an APN field containing information relating to a request for one of a private network address and a public network address,

the BG assigning one of a private network address and a public network address to the mobile station in response to the Create PDP Context Request message, and sending a Create PDP Context Response message from the BG to the SGSN containing the information assigning one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Create PDP Context Request message,

the SGSN sending an Activate PDP Context Accept message to the mobile station in response to the Create PDP Context Response message, the Activate PDP Context Accept message containing information assigning one of a private network address and a public network address to the mobile station based on the information contained in the APN

NC 17391  
B&W 5288.00014

field of the Activate PDP Context Request message.

21. The GPRS-based communications network according to claim 20, further comprising a Gateway GPRS Support Node (GGSN), and

wherein the SGSN sending the Create PDP Context Request message from the SGSN to the GGSN in response to the Activate PDP Protocol Context Request,

wherein the GGSN sending the Create PDP Context Request message from the GGSN to the BG, and

wherein the BG sends the Create PDP Context Response message from the BG to the GGSN and the GGSN sends the Create PDP Context Response message to from the GGSN to the SGSN.

22. The GPRS-based communications network according to claim 20, wherein the mobile station receives the Activate PDP Context Accept message containing the information relating to an assignment of one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Activate PDP Context Request message.

23. The GPRS-based communications network according to claim 20, wherein the information contained in the APN field of the Activate PDP Context Request message



explicitly indicates one of a private network address and a public network address.

24. The GPRS-based communications network according to claim 20, wherein the information contained in the APN field of the Activation PDP Context Request message implicitly indicates one of a private network address and a public network address.

25. The GPRS-based communications network according to claim 20, wherein the private network address and the public network address are each one of an IPv4 network address and an IPv6 network address.

26. The GPRS-based communications network according to claim 20, wherein the GPRS-based communications network is a GPRS communications network.

27. The GPRS-based communications network according to claim 20, wherein the GPRS-based communications network is a Universal Mobile Telecommunications System.

28. A method for assigning a network address in a General Packet Radio System (GPRS) -based communications network, the method comprising:

receiving a Create Packet Data Protocol (PDP) Context Request message from a Serving GPRS Support Node (SGSN) at Gateway GPRS Support Node (GGSN), the Create

NC 17391  
B&W 5288.00014

PDP Context Request Message having an APN field containing information relating to a request for one of a private network address and a public network address for a mobile station of the GPRS-based communications network;

assigning one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Create PDP Context Request message and

sending the Create PDP Context Response message from the GGSN to the SGSN containing the information assigning one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Create PDP Context Request message.

29. The method according to claim 28, wherein the GPRS-based communications network is a GPRS communications network.

30. The method according to claim 28, wherein the GPRS-based communications network is a Universal Mobile Telecommunications System.

31. A method for assigning a network address in a General Packet Radio System (GPRS) -based communications network, the method comprising:

receiving a Create Packet Data Protocol (PDP) Context Request message from

NC 17391  
B&W 5288.00014

a Serving GPRS Support Node (SGSN) at Border Gateway (BG), the Create PDP Context Request Message having an APN field containing information relating to a request for one of a private network address and a public network address for a mobile station of the GPRS-based communications network;

assigning one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Create PDP Context Request message and

sending the Create PDP Context Response message from the BG to the SGSN containing the information assigning one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Create PDP Context Request message.

32. A method for requesting an assignment of a network address in a General Packet Radio System (GPRS) -based communications network, the method comprising:

sending an Activate Packet Data Protocol (PDP) Context Request message to a Serving GPRS Support Node (SGSN) of the GPRS-based communications network from a mobile station of the GPRS-based communications network, the Activate PDP Context Request message having an APN field containing information relating to a request for one of a private network address and a public network address; and

receiving at the mobile station an Activate PDP Context Accept message containing information relating to an assignment of one of a private network address and a public network address to the mobile station based on the information contained in the APN field of the Activate PDP Context Request message.

33. The method according to claim 32, wherein the information contained in the APN field of the Activate PDP Context Request message explicitly indicates one of a private network address and a public network address.

34. The method according to claim 32, wherein the information contained in the APN field of the Activate PDP Context Request message implicitly indicates one of a private network address and a public network address.

35. The method according to claim 32, wherein the private network address and the public network address are each one of an IPv4 network address and an IPv6 network address.

36. The method according to claim 32, wherein the GPRS-based communications network is a GPRS communications network.

37. The method according to claim 32, wherein the GPRS-based communications network is a Universal Mobile Telecommunications System.

38. A General Packet Radio System (GPRS) -based communications network comprising:

a Serving GPRS Support Node (SGSN) receiving a datagram containing a payload from a mobile station of the GPRS-based communications network, the datagram being intended for a destination station; and

a Gateway GPRS Support Node (GGSN) of the GPRS-based communications network receiving a request from the SGSN for a public address for the mobile station, and in response, sending a reply to the SGSN containing a public address assigned to the mobile station,

the SGSN encapsulating the datagram with an outer IP header, an inner IP header and the payload, the outer IP header containing a private network address for the mobile station and a private network address for the SGSN, and the inner IP header containing the public address assigned to the mobile station and a public address for the destination station, and sending the encapsulated datagram to the GGSN,

the GGSN receiving the encapsulated datagram, removing the outer IP header and sending the datagram encapsulated with the inner IP header to the destination station.